

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Richland

2800 George Washington Way

Richland, WA 99352

Tel: (509)375-3131

TestAmerica Job ID: 300-4578-1

TestAmerica Sample Delivery Group: WC1719

Client Project/Site: S17-011

For:

CH2M Hill Plateau Remediation Company

PO BOX 1600

Mail Stop R3-50

Richland, Washington 99352

Attn: CPP Sample Management



Authorized for release by:

1/5/2017 11:39:16 AM

Steven Campbell, Project Mgmt. Assistant

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Designee for

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### LINKS

Review your project  
results through

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Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

*I certify that this Certificate of Analysis is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed in this package. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager, or a designee as verified by the attached signature.*

*The laboratory is accredited to EPA 7196A in Solid and Chemical Materials, per Washington State Department of Ecology this is approved for non-discharge water samples.*

January 5, 2017

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S17-011

TestAmerica Job ID: 300-4578-1  
SDG: WC1719

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Client: CH2M Hill Plateau Remediation Company  
Project/Site: S17-011

TestAmerica Job ID: 300-4578-1  
SDG: WC1719

## Qualifiers

### HPLC/IC

Qualifier	Qualifier Description
D	The reported value is from a dilution.
Z	Sample was prepped or analyzed beyond the specified holding time
N	MS, MSD: Spike recovery is outside acceptance limits.
U	Analyzed for but not detected.
X	See case narrative notes for explanation of the 'X' flag

### General Chemistry

Qualifier	Qualifier Description
U	Analyzed for but not detected.

## Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S17-011

TestAmerica Job ID: 300-4578-1  
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**Job ID: 300-4578-1**

**Laboratory: TestAmerica Richland**

#### Narrative

#### Job Narrative 300-4578-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 11/29/2016 2:45 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 8.4° C.

#### HPLC/IC

Method 300.0: Analysis of the following samples were performed outside of 1x analytical holding time but within 2x analytical holding time for Nitrate as N and Nitrite as N due to instrument malfunction: B377X1 (300-4578-7) and B378H5 (300-4578-8). For more information refer to SIR17-248 attached to report.

The matrix spike (MS) recovery for analytical batch 300-6664/6665 were outside control limits due to analyst error. The associated laboratory control sample (LCS) recovery was within acceptance limits. For more information refer to SIR17-307 attached to report.

Due to TALS limitations an N qualifier was not placed on sample B377X1 for Nitrate as N and Sulfate and on sample B378H5 for Sulfate.

An X flag indicates that the associated sample result exceeds four times the amount spiked into the MS sample for a given analyte.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### General Chemistry

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

<b>SAMPLE ISSUE RESOLUTION</b>	<b>SIR NUM</b>	SIR17-248
	<b>REV NUM</b>	0
	<b>DATE INITIATED</b>	12/21/2016

**SAMPLE EVENT INFORMATION**

**SAF NUM(S)** S17-011

**OPERABLE UNIT(S)** NONE

**PROJECT(S)** CERC17

**SAMPLE EVENT TITLE(S)** CERC17

**LABORATORY** TestAmerica Incorporated, Richland

**SAMPLING INFORMATION**

**NUMBER OF SAMPLES** 2

**SAMPLE NUMBERS** B377X1, B378H5

**SAMPLE MATRIX** WATER

**COLLECTION DATE** 11/29/2016 - 11/29/2016

**SDG NUM** WC1719

**ISSUE BACKGROUND**

**CLASS** Laboratory Issue

**TYPE** Analysis Holding Time Exceeded

**DESCRIPTION** The samples listed above were analyzed outside of 1x hold time but within 2x hold time for the Nitrate as N and Nitrite as N analytes in Anion analysis due to system error.

**DISPOSITION**

**DESCRIPTION** Initiate SIR, report results and include hold time comment in the case narrative.

**JUSTIFICATION** Final Disposition: Accept proposed resolution

SUBMITTED BY: Steven Campbell DATE: 12/20/2016  
ACCEPTED BY: Scot Fitzgerald DATE: 12/21/2016

January 5, 2017

<b>SAMPLE ISSUE RESOLUTION</b>	<b>SIR NUM</b>	SIR17-307
	<b>REV NUM</b>	0
	<b>DATE INITIATED</b>	1/5/2017

**SAMPLE EVENT INFORMATION**

**SAF NUM(S)** S17-011  
**OPERABLE UNIT(S)** NONE  
**PROJECT(S)** CERC17  
**SAMPLE EVENT TITLE(S)** CERC17  
**LABORATORY** TestAmerica Incorporated, Richland

**SAMPLING INFORMATION**

**NUMBER OF SAMPLES** 2  
**SAMPLE NUMBERS** B377X1, B378H5  
**SAMPLE MATRIX** WATER  
**COLLECTION DATE** 11/29/2016 - 11/29/2016  
**SDG NUM** WC1719

**ISSUE BACKGROUND**

**CLASS** Laboratory Issue  
**TYPE** Quality Control Failure  
**DESCRIPTION** The MS recovery for Common Anions is outside acceptance criteria due to analyst error with a recovery of -7% for Nitrate as N, 0% for Nitrite as N, -2% for Chloride, -0.7% for Fluoride, and -14% for Sulfate.

**DISPOSITION**

**DESCRIPTION** Initiate SIR, report results and include a discussion of the MS and MSD anomalies in the case narrative and add an N flag to the affected sample.

**JUSTIFICATION** Final Disposition: Accept proposed resolution.

SUBMITTED BY: Steven Campbell DATE: 01/05/2016 2017 SEN 01/12/2017  
ACCEPTED BY: Sarah Nagel DATE: 01/05/2016 2017 SEN 01/12/2017

Cool  $\leq 60^{\circ}\text{C}$ 

300-4578 COC

7 of 23 1/5/2017

Date/Time

CH2MHill Plateau Remediation Company

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #

S17-011-331

Page 1 of 1

Collector	<del>Frank Hill</del> ACHRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	S17-011	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	SURV, NOVEMBER 2016	Logbook No.	HNF-N-506 89/68	Ice Chest No.	N/A
Shipped To (Lab)	TestAmerica Incorporated, Richland	Method of Shipment	GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.	N/A
Protocol	CERCLA	Priority:	15 Days	Offsite Property No.	N/A
POSSIBLE SAMPLE HAZARDS/REMARKS			SPECIAL INSTRUCTIONS		
*** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 438.1			Hold Time		
			Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
			Special Handling: N/A		

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B37838	N	W	NOV 29	1045	1x60-mL aG	7196_CRG: COMMON	24 Hours	Cool <=6C
B37839	Y	W	NOV 29	0915	1x60-mL aG	7196_CRG: COMMON	24 Hours	Cool <=6C

#4578  
WTC1719

January 5, 2017

Relinquished By	<del>Frank Hill</del> ACHRC	Print	Sign	Date/Time	NOV 29 2016 1045	Received By	<del>Frank Hill</del> ACHRC	Print	Sign	Date/Time	NOV 29 2016 1045	<b>Matrix *</b> S = Soil DS = Drum Solids SE = Sediment DL = Drum Liquids SO = Solid T = Tissue SL = Sludge WL = Wipe W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By	Frank Hill ACHRC			Date/Time	NOV 29 2016 1445	Received By	J. Bock, TARI			Date/Time	NOV 29 2016 1445	
Relinquished By				Date/Time		Received By				Date/Time		
Relinquished By				Date/Time		Received By				Date/Time		
Relinquished By				Date/Time		Received By				Date/Time		
FINAL SAMPLE DISPOSITION												
Disposal Method (e.g., Return to customer, per lab procedure, used in process)						Disposed By						



CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #  
S17-011-363  
Page 1 of 1

Collector <b>J.C. Fulton CHPRC</b>	Contact/Requester Karen Waters-Husted	Telephone No. 509-376-4650
SAF No. S17-011	Sampling Origin Hanford Site	Purchase Order/Charge Code 300071
Project Title SURV, NOVEMBER 2016	Logbook No. HNF-N-506 92 / 5	Ice Chest No. N/A
Shipped To (Lab) TestAmerica Incorporated, Richland	Method of Shipment GOVERNMENT VEHICLE	Bill of Lading/Air Bill No. N/A
Protocol CERCLA	Priority: 15 Days	Offsite Property No. N/A

POSSIBLE SAMPLE HAZARDS/REMARKS

\*\* Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

SPECIAL INSTRUCTIONS  
N/A  
Special Handling: N/A

Hold Time

Total Activity Exemption: Yes ☒ No ☐

Sample No.	Filter	*	Date	Time	No./Type Container	Sample Analysis	Holding Time	Preservative
B378H8	Y		NOV 29 2016	1223	1x60-mL aG	7196_CR6: COMMON	24 Hours	Cool <=6C
B378H6	N	W	NOV 29 2016	1223	1x60-mL aG	7196_CR6: COMMON	24 Hours	Cool <=6C

#4578  
WFC1719

Relinquished By <b>J.C. Fulton CHPRC</b>	Print 	Sign 	Date/Time NOV 29 2016	Received By <b>Frank Hall CHPRC</b>	Print 	Sign 	Date/Time NOV 29 2016	Matrix * S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids DL = Drum Liquids T = Tissue WT = Wipe L = Liquid V = Vegetation X = Other
Relinquished By <b>Frank Hall CHPRC</b>			Date/Time NOV 29 2016	Received By <b>J. Bock, TARR</b>			Date/Time NOV 29 2016	
Relinquished By			Date/Time	Received By			Date/Time	
Relinquished By			Date/Time	Received By			Date/Time	

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
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# CH2M Hill Plateau Remediation Company

## CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #  
S17-011-314  
Page 1 of 1

Collector	J.C. Fulton CHPRC	Contact/Requester	Karen Waters-Husted	Telephone No.	509-376-4650
SAF No.	S17-011	Sampling Origin	Hanford Site	Purchase Order/Charge Code	300071
Project Title	SURV, NOVEMBER 2016	Logbook No.	HNF-N-506 42 / 5	Ice Chest No.	N/A
Shipped To (Lab)	TestAmerica Incorporated, Richland	Method of Shipment	GOVERNMENT VEHICLE	Bill of Lading/Air Bill No.	N/A
Protocol	CERCLA	Priority:	15 Days	Offsite Property No.	N/A
POSSIBLE SAMPLE HAZARDS/REMARKS		SPECIAL INSTRUCTIONS		Hold Time	
*** Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1		N/A Special Handling: N/A		Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Sample No.	Filter	*	Date	Time	No./Type Container	Sample Analysis	Holding Time	Preservative
B377X1	N	W	NOV 29 2016	145	1x125-mL P	300.0_ANIONS_JC: COMMON	48 Hours	Cool <=6C

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WCE17119

January 5, 2017

Relinquished By	J.C. Fulton CHPRC	Print	Sign	Date/Time	NOV 29 2016	Received By	Frank Holt CHPRC	Print	Sign	Date/Time	NOV 29 2016	Matrix *
Relinquished By	Frank Holt CHPRC	Print	Sign	Date/Time	NOV 29 2016	Received By	J. Bock, TARL	Print	Sign	Date/Time	NOV 29 2016	S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids DL = Drum Liquids T = Tissue WT = Wipe L = Liquid V = Vegetation X = Other
Relinquished By				Date/Time		Received By				Date/Time		
Relinquished By				Date/Time		Received By				Date/Time		
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)											

# CH2MHill Plateau Remediation Company

## CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #  
**S17-011-364**

Page 1 of 1

Collector <b>J.C. Fulton CHPRC</b>	Contact/Requester <b>Karen Waters-Husted</b>	Telephone No. <b>509-376-4650</b>
SAF No. <b>S17-011</b>	Sampling Origin <b>Hanford Site</b>	Purchase Order/Charge Code <b>300071</b>
Project Title <b>SURY, NOVEMBER 2016</b>	Logbook No. <b>HNF-N-506 92 / 5</b>	Ice Chest No. <b>N/A</b>
Shipped To (Lab) <b>TestAmerica Incorporated, Richland</b>	Method of Shipment <b>GOVERNMENT VEHICLE</b>	Bill of Lading/Air Bill No. <b>N/A</b>
Protocol <b>CERCLA</b>	Priority: <b>15 Days</b>	Offsite Property No. <b>N/A</b>

### POSSIBLE SAMPLE HAZARDS/REMARKS

\*\*\* Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 458.1

SPECIAL INSTRUCTIONS  
N/A  
Special Handling: N/A

Hold Time

Total Activity Exemption: Yes ☒ No ☐

Sample No.	Filter	*	Date	Time	No/Type Container	Sample Analysis	Holding Time	Preservative
B378H5	N	W	NOV 29 2016	1223	1x125-mL P	300.0 ANIONS_IC: COMMON	48 Hours	Cool <=6C

#4578  
WFC1719

Relinquished By <b>J.C. Fulton CHPRC</b>	Print 	Sign 	Date/Time <b>NOV 29 2016</b>	Received By <b>Frank Hall CHPRC</b>	Print 	Sign 	Date/Time <b>NOV 29 2016</b>	Matrix * S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air DS = Drum Solids DL = Drum Liquids T = Tissue WT = Wipe L = Liquid V = Vegetation X = Other
Relinquished By <b>Frank Hall CHPRC</b>	Print 	Sign 	Date/Time <b>NOV 29 2016</b>	Received By <b>J. Bock, TARL</b>	Print 	Sign 	Date/Time <b>NOV 29 2016</b>	
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	
Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time	

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time
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# January 5, 2017 Detection Summary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S17-011

TestAmerica Job ID: 300-4578-1  
SDG: WC1719

## Client Sample ID: B377X4

## Lab Sample ID: 300-4578-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	0.0067		0.0040	0.0015	mg/L	1		7196A	Total/NA

## Client Sample ID: B377X2

## Lab Sample ID: 300-4578-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	0.0058		0.0040	0.0015	mg/L	1		7196A	Total/NA

## Client Sample ID: B37838

## Lab Sample ID: 300-4578-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	0.028		0.0040	0.0015	mg/L	1		7196A	Total/NA

## Client Sample ID: B37839

## Lab Sample ID: 300-4578-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	0.028		0.0040	0.0015	mg/L	1		7196A	Total/NA

## Client Sample ID: B378H8

## Lab Sample ID: 300-4578-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	0.013		0.0040	0.0015	mg/L	1		7196A	Total/NA

## Client Sample ID: B378H6

## Lab Sample ID: 300-4578-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cr (VI)	0.0095		0.0040	0.0015	mg/L	1		7196A	Total/NA

## Client Sample ID: B377X1

## Lab Sample ID: 300-4578-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.6	D N	0.40	0.20	mg/L	2		300.0	Total/NA
Nitrate as N	3.4	Z D	0.056	0.028	mg/L	2		300.0	Total/NA
Fluoride	0.12	D N	0.10	0.050	mg/L	2		300.0	Total/NA
Sulfate	98	D	0.50	0.25	mg/L	2		300.0	Total/NA

## Client Sample ID: B378H5

## Lab Sample ID: 300-4578-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chloride	8.2	D N	0.40	0.20	mg/L	2		300.0	Total/NA
Nitrate as N	2.6	Z D N	0.056	0.028	mg/L	2		300.0	Total/NA
Fluoride	0.18	D N	0.10	0.050	mg/L	2		300.0	Total/NA
Sulfate	70	D	0.50	0.25	mg/L	2		300.0	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Richland

# January 5, 2017 Client Sample Results

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S17-011

TestAmerica Job ID: 300-4578-1  
SDG: WC1719

**Client Sample ID: B377X4**  
**Date Collected: 11/29/16 11:45**  
**Date Received: 11/29/16 14:45**

**Lab Sample ID: 300-4578-1**  
**Matrix: Water**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0067		0.0040	0.0015	mg/L	-		11/29/16 18:43	1

**Client Sample ID: B377X2**  
**Date Collected: 11/29/16 11:45**  
**Date Received: 11/29/16 14:45**

**Lab Sample ID: 300-4578-2**  
**Matrix: Water**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0058		0.0040	0.0015	mg/L	-		11/29/16 18:43	1

**Client Sample ID: B37838**  
**Date Collected: 11/29/16 09:15**  
**Date Received: 11/29/16 14:45**

**Lab Sample ID: 300-4578-3**  
**Matrix: Water**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.028		0.0040	0.0015	mg/L	-		11/29/16 18:44	1

**Client Sample ID: B37839**  
**Date Collected: 11/29/16 09:15**  
**Date Received: 11/29/16 14:45**

**Lab Sample ID: 300-4578-4**  
**Matrix: Water**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.028		0.0040	0.0015	mg/L	-		11/29/16 18:45	1

**Client Sample ID: B378H8**  
**Date Collected: 11/29/16 12:23**  
**Date Received: 11/29/16 14:45**

**Lab Sample ID: 300-4578-5**  
**Matrix: Water**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.013		0.0040	0.0015	mg/L	-		11/29/16 18:45	1

**Client Sample ID: B378H6**  
**Date Collected: 11/29/16 12:23**  
**Date Received: 11/29/16 14:45**

**Lab Sample ID: 300-4578-6**  
**Matrix: Water**

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0095		0.0040	0.0015	mg/L	-		11/29/16 18:48	1

**Client Sample ID: B377X1**  
**Date Collected: 11/29/16 11:45**  
**Date Received: 11/29/16 14:45**

**Lab Sample ID: 300-4578-7**  
**Matrix: Water**

## Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.6	D N	0.40	0.20	mg/L	-		12/03/16 01:38	2
Nitrate as N	3.4	Z D	0.056	0.028	mg/L	-		12/03/16 01:38	2
Fluoride	0.12	D N	0.10	0.050	mg/L	-		12/03/16 01:38	2

TestAmerica Richland

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S17-011

TestAmerica Job ID: 300-4578-1  
SDG: WC1719

Client Sample ID: B377X1

Date Collected: 11/29/16 11:45

Date Received: 11/29/16 14:45

Lab Sample ID: 300-4578-7

Matrix: Water

Method: 300.0 - Anions, Ion Chromatography (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrite as N	0.038	U Z D N	0.076	0.038	mg/L			12/03/16 01:38	2
Sulfate	98	D	0.50	0.25	mg/L			12/03/16 01:38	2

Client Sample ID: B378H5

Date Collected: 11/29/16 12:23

Date Received: 11/29/16 14:45

Lab Sample ID: 300-4578-8

Matrix: Water

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.2	D N	0.40	0.20	mg/L			12/03/16 02:23	2
Nitrate as N	2.6	Z D N	0.056	0.028	mg/L			12/03/16 02:23	2
Fluoride	0.18	D N	0.10	0.050	mg/L			12/03/16 02:23	2
Nitrite as N	0.038	U Z D N	0.076	0.038	mg/L			12/03/16 02:23	2
Sulfate	70	D	0.50	0.25	mg/L			12/03/16 02:23	2

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S17-011

TestAmerica Job ID: 300-4578-1  
SDG: WC1719

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 300-6664/5

Matrix: Water

Analysis Batch: 6664

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	0.014	U	0.028	0.014	mg/L			12/02/16 18:06	1
Nitrite as N	0.019	U	0.038	0.019	mg/L			12/02/16 18:06	1

Lab Sample ID: LCS 300-6664/6

Matrix: Water

Analysis Batch: 6664

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	2.26	2.32		mg/L		103	80 - 120
Nitrite as N	3.04	3.15		mg/L		103	80 - 120

Lab Sample ID: 300-4578-7 MS

Matrix: Water

Analysis Batch: 6664

Client Sample ID: B377X1

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Nitrate as N	3.4	Z D	0.452	3.41	D X	mg/L		-7	75 - 125
Nitrite as N	0.038	U Z D N	0.609	0.038	U D N	mg/L		0	75 - 125

Lab Sample ID: 300-4578-7 DU

Matrix: Water

Analysis Batch: 6664

Client Sample ID: B377X1

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Nitrate as N	3.4	Z D	3.35	D	mg/L		2	20
Nitrite as N	0.038	U Z D N	0.038	U D	mg/L		NC	20

Lab Sample ID: MB 300-6665/5

Matrix: Water

Analysis Batch: 6665

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.10	U	0.20	0.10	mg/L			12/02/16 18:06	1
Fluoride	0.025	U	0.050	0.025	mg/L			12/02/16 18:06	1
Sulfate	0.13	U	0.25	0.13	mg/L			12/02/16 18:06	1

Lab Sample ID: LCS 300-6665/6

Matrix: Water

Analysis Batch: 6665

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	16.0	16.4		mg/L		102	80 - 120
Fluoride	4.00	4.10		mg/L		102	80 - 120
Sulfate	20.0	20.4		mg/L		102	80 - 120

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S17-011

TestAmerica Job ID: 300-4578-1  
SDG: WC1719

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 300-4578-7 MS

Matrix: Water

Analysis Batch: 6665

Client Sample ID: B377X1

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	8.6	D N	3.20	8.51	D N	mg/L	-	-2	75 - 125
Fluoride	0.12	D N	0.800	0.119	D N	mg/L	-	-0.7	75 - 125
Sulfate	98	D	4.00	97.8	D X	mg/L	-	-14	75 - 125

Lab Sample ID: 300-4578-7 DU

Matrix: Water

Analysis Batch: 6665

Client Sample ID: B377X1

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chloride	8.6	D N	8.38	D	mg/L	-	2	20
Fluoride	0.12	D N	0.118	D	mg/L	-	5	20
Sulfate	98	D	96.3	D	mg/L	-	2	20

Method: 7196A - Chromium, Hexavalent

Lab Sample ID: MB 300-6615/31

Matrix: Water

Analysis Batch: 6615

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Cr (VI)	0.0015	U	0.0040	0.0015	mg/L	-		11/29/16 18:33	1

Lab Sample ID: LCS 300-6615/32

Matrix: Water

Analysis Batch: 6615

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	0.250	0.248		mg/L	-	99	80 - 120

Lab Sample ID: 300-4577-A-5 MS

Matrix: Water

Analysis Batch: 6615

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Cr (VI)	0.0051		0.0500	0.0544		mg/L	-	99	75 - 125

Lab Sample ID: 300-4577-A-5 DU

Matrix: Water

Analysis Batch: 6615

Client Sample ID: Duplicate

Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Cr (VI)	0.0051		0.00540		mg/L	-	6	20



# January 5, 2017

## QC Association Summary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S17-011

TestAmerica Job ID: 300-4578-1  
SDG: WC1719

### HPLC/IC

#### Analysis Batch: 6664

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-4578-7	B377X1	Total/NA	Water	300.0	
300-4578-8	B378H5	Total/NA	Water	300.0	
MB 300-6664/5	Method Blank	Total/NA	Water	300.0	
LCS 300-6664/6	Lab Control Sample	Total/NA	Water	300.0	
300-4578-7 MS	B377X1	Total/NA	Water	300.0	
300-4578-7 DU	B377X1	Total/NA	Water	300.0	

#### Analysis Batch: 6665

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-4578-7	B377X1	Total/NA	Water	300.0	
300-4578-8	B378H5	Total/NA	Water	300.0	
MB 300-6665/5	Method Blank	Total/NA	Water	300.0	
LCS 300-6665/6	Lab Control Sample	Total/NA	Water	300.0	
300-4578-7 MS	B377X1	Total/NA	Water	300.0	
300-4578-7 DU	B377X1	Total/NA	Water	300.0	

### General Chemistry

#### Analysis Batch: 6615

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
300-4578-1	B377X4	Total/NA	Water	7196A	
300-4578-2	B377X2	Total/NA	Water	7196A	
300-4578-3	B37838	Total/NA	Water	7196A	
300-4578-4	B37839	Total/NA	Water	7196A	
300-4578-5	B378H8	Total/NA	Water	7196A	
300-4578-6	B378H6	Total/NA	Water	7196A	
MB 300-6615/31	Method Blank	Total/NA	Water	7196A	
LCS 300-6615/32	Lab Control Sample	Total/NA	Water	7196A	
300-4577-A-5 MS	Matrix Spike	Total/NA	Water	7196A	
300-4577-A-5 DU	Duplicate	Total/NA	Water	7196A	

TestAmerica Richland

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S17-011

TestAmerica Job ID: 300-4578-1  
SDG: WC1719

**Client Sample ID: B377X4**

**Date Collected: 11/29/16 11:45**

**Date Received: 11/29/16 14:45**

**Lab Sample ID: 300-4578-1**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			6615	11/29/16 18:43	KNL	TAL RCH

**Client Sample ID: B377X2**

**Date Collected: 11/29/16 11:45**

**Date Received: 11/29/16 14:45**

**Lab Sample ID: 300-4578-2**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			6615	11/29/16 18:43	KNL	TAL RCH

**Client Sample ID: B37838**

**Date Collected: 11/29/16 09:15**

**Date Received: 11/29/16 14:45**

**Lab Sample ID: 300-4578-3**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			6615	11/29/16 18:44	KNL	TAL RCH

**Client Sample ID: B37839**

**Date Collected: 11/29/16 09:15**

**Date Received: 11/29/16 14:45**

**Lab Sample ID: 300-4578-4**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			6615	11/29/16 18:45	KNL	TAL RCH

**Client Sample ID: B378H8**

**Date Collected: 11/29/16 12:23**

**Date Received: 11/29/16 14:45**

**Lab Sample ID: 300-4578-5**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			6615	11/29/16 18:45	KNL	TAL RCH

**Client Sample ID: B378H6**

**Date Collected: 11/29/16 12:23**

**Date Received: 11/29/16 14:45**

**Lab Sample ID: 300-4578-6**

**Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			6615	11/29/16 18:48	KNL	TAL RCH

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S17-011TestAmerica Job ID: 300-4578-1  
SDG: WC1719**Client Sample ID: B377X1****Date Collected: 11/29/16 11:45****Date Received: 11/29/16 14:45****Lab Sample ID: 300-4578-7****Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		2			6664	12/03/16 01:38	RLC	TAL RCH
Total/NA	Analysis	300.0		2			6665	12/03/16 01:38	RLC	TAL RCH

**Client Sample ID: B378H5****Date Collected: 11/29/16 12:23****Date Received: 11/29/16 14:45****Lab Sample ID: 300-4578-8****Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		2			6664	12/03/16 02:23	RLC	TAL RCH
Total/NA	Analysis	300.0		2			6665	12/03/16 02:23	RLC	TAL RCH

**Client Sample ID: Method Blank****Date Collected: N/A****Date Received: N/A****Lab Sample ID: MB 300-6615/31****Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			6615	11/29/16 18:33	KNL	TAL RCH

**Client Sample ID: Method Blank****Date Collected: N/A****Date Received: N/A****Lab Sample ID: MB 300-6664/5****Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			6664	12/02/16 18:06	RLC	TAL RCH

**Client Sample ID: Method Blank****Date Collected: N/A****Date Received: N/A****Lab Sample ID: MB 300-6665/5****Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			6665	12/02/16 18:06	RLC	TAL RCH

**Client Sample ID: Lab Control Sample****Date Collected: N/A****Date Received: N/A****Lab Sample ID: LCS 300-6615/32****Matrix: Water**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			6615	11/29/16 18:34	KNL	TAL RCH

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S17-011

TestAmerica Job ID: 300-4578-1  
SDG: WC1719

**Client Sample ID: Lab Control Sample**

**Lab Sample ID: LCS 300-6664/6**

Date Collected: N/A

Matrix: Water

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			6664	12/02/16 18:21	RLC	TAL RCH

**Client Sample ID: Lab Control Sample**

**Lab Sample ID: LCS 300-6665/6**

Date Collected: N/A

Matrix: Water

Date Received: N/A

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1			6665	12/02/16 18:21	RLC	TAL RCH

**Client Sample ID: Matrix Spike**

**Lab Sample ID: 300-4577-A-5 MS**

Date Collected: 11/29/16 09:40

Matrix: Water

Date Received: 11/29/16 14:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7196A		1			6615	11/29/16 18:34	KNL	TAL RCH

**Client Sample ID: B377X1**

**Lab Sample ID: 300-4578-7 MS**

Date Collected: 11/29/16 11:45

Matrix: Water

Date Received: 11/29/16 14:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		2			6664	12/03/16 01:53	RLC	TAL RCH
Total/NA	Analysis	300.0		2			6665	12/03/16 01:53	RLC	TAL RCH

**Laboratory References:**

TAL RCH = TestAmerica Richland, 2800 George Washington Way, Richland, WA 99352, TEL (509)375-3131

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S17-011

TestAmerica Job ID: 300-4578-1  
SDG: WC1719

Method	Method Description	Protocol	Laboratory
300.0	Anions, Ion Chromatography	MCAWW	TAL RCH
7196A	Chromium, Hexavalent	SW846	TAL RCH

**Protocol References:**

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.  
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

**Laboratory References:**

TAL RCH = TestAmerica Richland, 2800 George Washington Way, Richland, WA 99352, TEL (509)375-3131

January 5, 2017  
Sample Summary

Client: CH2M Hill Plateau Remediation Company  
Project/Site: S17-011

TestAmerica Job ID: 300-4578-1  
SDG: WC1719

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
300-4578-1	B377X4	Water	11/29/16 11:45	11/29/16 14:45
300-4578-2	B377X2	Water	11/29/16 11:45	11/29/16 14:45
300-4578-3	B37838	Water	11/29/16 09:15	11/29/16 14:45
300-4578-4	B37839	Water	11/29/16 09:15	11/29/16 14:45
300-4578-5	B378H8	Water	11/29/16 12:23	11/29/16 14:45
300-4578-6	B378H6	Water	11/29/16 12:23	11/29/16 14:45
300-4578-7	B377X1	Water	11/29/16 11:45	11/29/16 14:45
300-4578-8	B378H5	Water	11/29/16 12:23	11/29/16 14:45

TestAmerica Richland

January 5, 2017

## Login Sample Receipt Checklist

Client: CH2M Hill Plateau Remediation Company

Job Number: 300-4578-1

SDG Number: WC1719

Login Number: 4578

List Number: 1

Creator: Anderson, Lori F

List Source: TestAmerica Richland

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	N/A	
Cooler Temperature is recorded.	N/A	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	N/A	
Samples do not require splitting or compositing.	N/A	
Residual Chlorine Checked.	N/A	